



Short videos to enhance student learning in microbiological laboratory exercises

Löfström, Charlotta; Jensen, Lars Bogø; Josefsen, Mathilde Hartmann

Publication date:
2013

Document Version
Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

Citation (APA):
Löfström, C., Jensen, L. B., & Josefsen, M. H. (2013). *Short videos to enhance student learning in microbiological laboratory exercises*. Poster session presented at Conceive Design Implement Operate (CDIO 2013), Cambridge, MA, United States.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Short videos to enhance student learning in microbiological laboratory exercises

Charlotta Löfström, Lars Bogø Jensen, Mathilde H. Josefsen

National Food Institute, Technical University of Denmark, Søborg. E-mail: chalo@food.dtu.dk

Aim

To evaluate the use of short videos to enhance learning in practical laboratory exercises in microbiology.

Introduction

Digital learning objects, such as videos, are increasingly being used as a complement to traditional text books and represents innovative tools to enhance student learning (1, 2).

The use of short videos, uploaded on YouTube, was used to introduce students in a 7.5 ECTS B. Eng., course in Biological Chemistry at the Technical University of Denmark (DTU) to basic techniques being taught during the practical laboratory exercises.

Results

- 83% of the students reported having seen the videos outside class
- All students felt that videos aided their understanding of the laboratory techniques
- Critique from students: videos too long
- Suggestion from students: produce additional videos demonstrating key concepts and cases
- Teachers: “Using videos in class allowed me to spend time on explaining the concepts and conceive misconceptions, rather than the experimental procedures”

Conclusions

- Videos explaining laboratory procedures was found to be a useful complement to the laboratory compendium
- The use of videos allowed students to focus more on conceptual understanding of the exercise and the related theory
- Additional videos explaining key concepts would be beneficial to include in the future

Table 1. Description of the main content of the 8 videos together with screenshots from YouTube and Quick Response (QR) codes that allows easy access for students using e.g. a smartphone.

Main content of video	Screenshot	QR code	Main content of video	Screenshot	QR code
How to use a pipette			How to use a Sensititre panel to investigate antimicrobial resistance		
How to prepare a dilution series			How to interpret a Sensititre panel		
How to spread a sample on agar plate			How to separate PCR products by gel electrophoresis		
How to make a pure isolate by sub culturing a single colony			How to perform a filter conjugation		

Study design

- 8 short videos (3-7 min) (Table 1)
- Uploaded on YouTube and DTU’s podcast channel
- Links (URL and QR code) included in laboratory compendium
- Videos shown before each exercise

Acknowledgements

Thanks to DTU Learning Lab for help with producing the videos.

References

- McKelvy G. M., (2000) Univ Chem Edu, 4(2)
- Powell C.B. & Mason D.S. (2013) J Sci Educ Technol

DTU Food

National Food Institute

Download the poster by scanning this QR code: